bird was quite common in the area as were the other four species that we noticed, namely the Small Blue Kingfisher (*Alcedo atthis*), the White-breasted Kingfisher (*Halcyon smyrnensis*), Blackcapped Kingfisher (*Halcyon pileata*) and the Whitecollared Kingfisher (*Halcyon chloris*). The latter is also an addition to the Orissa bird list.

The Brownwinged Kingfisher has not been recorded south-west of the Sunderbans in West Bengal but is likely to occur in suitable biotopes along the coast south of the present location. A race of the White-collared Kingfisher is known from the west coast of India.

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7. DEVELOPMENTAL PERIOD AND FEEDING HABITS OF BANK MYNA, *ACRIDOTHERES GINGINIANUS* (LATHAM) IN PUNJAB

Developmental period and feeding habits of bank myna, *Acridotheres ginginianus* (Latham) were made during 1970-1972. The birds reared 1-2 broods from Mid April to August, each time laying 2-5 eggs. The incubation was done by both sexes. The egg stage lasted for 13·3 days. Newly hatched young were pink, naked and with eyes closed. Nestlings opened their eyes within 5-6 days. Both sexes fed the nestlings *c.* 15 times/hour. Feathers started sprouting within first week. Nestlings left the nest in 20·4 days. The nesting success was 38.5% (37/96). Fruits of winegrapes (*Vitis vinifera* L.), seeds of pearl millet (*Pennisetum typhoideum* L. C. Rich.), maize (*Zea mays* L.), wheat (*Triticum aestivum* L.), berries of banyan (*Ficus benghalensis* L.), peepul (*Ficus religiosa* L.), carpenter ants (*Camponotus compressus* Fab.), black ants (*Monomorium indicum* Forel.), house-fly (*Musca domestica* L.), rat-tailed larvae of hover fly (*Eristalis tenax* L.), tiger beetles (*Cicindela sexpunctata* Fab.), mole crickets (*Gryllotalpa africana* Beauvois), grasshoppers (*Oxya nitidula* Walker), caterpillars, ground and dungbeetles (unidentified) constituted the food of birds.

The bank myna, *Acridotheres ginginianus* (Latham) which is found only in North India and Pakistan (Ripley 1961) has now become a pest of grapes. The birds puncture and eat the berries and also feed the berries to the nestlings. Notes on the breeding season, nesting habits and clutch-size have been given by Whistler (1963) and Ali (1964). The

information regarding the developmental period and month-wise feeding-habits were lacking, and are presented in this paper.

Six colonial nesting sites were selected for studying the developmental period. The feeding-habits of the bird were observed every month throughout the year by direct observations in the field as well as by examining the gut contents of 159 birds[1].

The birds reared 1-2 broods during Mid April-August. Incubation was started as soon as the first egg was laid. The interval between two eggs was 1-2 days. In one nest it was as long as 6 days. Both sexes incubated. The birds sit facing the entrance when incubating. During incubation and early stage of nestling development, the female stayed in the nest at night. The eggs hatched after 13·3 days (n=19)[2] and empty egg shells were thrown off the nest. The hatching of young took place on different days. Newly hatched nestlings were naked (except small white tufts of nestling down on head and back), pink, and had the eyes closed. The eyes opened in 5-6 days. Week-old nestlings excreted when handled; possibly a defensive act. The feathers on the body appeared within a week when the length of tail was 2-3 cm. The white wing patch appeared on 12th day and by 17th day, the whole of the body except the anal area was feathered. Both sexes fed the nestlings and the rate of feeding was 15 times/hour. Nestlings left the nest in 20·4 days (n = 12)[3]. The nesting success was 38·5% (37/96).

The Bank Myna is omnivorous. Grapes which are quite economically important was heavily attacked by the birds in June. During the rest of the year, except for occasionally feeding on pearl millet in the field, insects especially carpenter ants, house-flies, hoverflies, lepidopterous caterpillars, crickets, grasshoppers and berries of peepul and banyan constituted the major part of the diet. Small sized insects e.g. house-fly, ants and caterpillars were found whole in the gut but larger insects like grasshoppers and mole crickets, were broken up. At times, the guts were full with larvae of *Eristalis tenax* L., larvae, pupae and adults of house-fly, lepidopterous caterpillars, grasshoppers (*Oxya nitidula* Walker), carpenter ants and mole crickets. Feeding mostly took place near ditches, ponds, rubbish and dung heaps. The birds also followed cultivators and grazing cattle to take the disturbed insects.

The birds are serious pest of grapes in June and in other months they took mostly harmful insects. It is, therefore, suggested that measures regarding control of birds should be confined to the month of June.

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[1] Except from mid May to mid June (peak nestling feeding period) when 7 birds a week were shot, 3 birds a week were shot throughout the year.

[2] n = 19 n here stands for the number of eggs. The 13·3 days incubation period is the average of the incubation period of 19 eggs of different nests.

[3] n = 12 n here stands for the number of nestlings i.e. 12. The 20·4 days nestling period is average of the nestling period of 12 nestlings of many nests.

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TABLE

FOOD TAKEN BY THE BANK MYNAS IN DIFFERENT MONTHS DURING 1970-71

Month	Food
January ..	Kernels of groundnut (*Arachis hypogea* L.), Seeds of maize (*Zea mays* L.), wheat (*Triticum aestivum* L.), berries of peepul (*Ficus religiosa* L.) and carpenter ants (*Camponotus compressus* Fab.).
February ..	Carpenter ants, pupae and adults of house-fly (*Musca domestica* L.), ground beetles (unidentified), seeds of maize and wheat, berries of peepul.
March ..	-do-
April ..	Carpenter ants, house-flies, berries of peepul and white mulberry (*Morus alba* L.).
May ..	Rat-tailed larvae of hover flies (*Eristalis tenax* L.), carpenter ants, tiger beetles (*Cicindela sexpunctata* Fab.), shells of small snails, caterpillars (unidentified) and berries of banyan (*Ficus benghalensis* L.).
June ..	Fruits of grapes (*Vitis vinifera* L.), rat-tailed larvae of hoverflies, ground beetles, grasshoppers (*Oxya nitidula* Walker), caterpillars, berries of peepul, and banyan.
July ..	Grapes, mole crickets (*Gryllotalpa africana* Beauvois), pupae & adults of house-fly, shells of snails and berries of banyan.
August ..	Kernels of groundnut, field crickets (*Gryllus viator* Kirby), dung beetles (unidentified), shells of snails, black ants (*Monomorium indicum* Forel.) and berries of peepul.
September ..	Seeds of pearl millet (*Pennisetum typhoideum* L.C. Rich.). Berries of banyan and grapes, dung beetles.
October ..	Seeds of maize, wheat, gram, carpenter ants, house-flies, dung beetles, small pieces of pebbles, berries of peepul and grapes.
November ..	Kernels of groundnut, carpenter ants, house-flies and berries of peepul.
December ..	Kernels of groundnut, seeds of pearl millet, maize and wheat, white grubs (unidentified), larvae and pupae of dung insects.

REFERENCES

ALI, S. (1964): The bank myna, *Acridotheres ginginianus* (Latham). The Book of Indian birds, p. 30. Bombay Natural History Society, Bombay.

RIPLEY, S. D. (1961): A synopsis of the Birds of India and Pakistan, p. 302. Bombay Natural History Society, Bombay.

WHISTLER, H. (1963): Popular Hand Book of Indian Birds, pp. 205-6. Oliver & Boyd, Edinburgh and London.

8. STUDY ON THE STOMACH CONTENTS OF COMMON BAYA, *PLOCEUS PHILIPPINUS* (LINNAEUS)

While studying the stomach-contents of the Common Baya (56 adults and 80 chicks) in the paddy cultivating area, of Orissa and West Bengal, the following observations on the food of the birds were made :

In the case of very young chicks (3 to 6 days), the stomach-contents consisted mainly of weed seeds (Graminiae) and a number of minute stone chips. In some cases, a few broken mollusc-shells were also found. As the chicks grew up (7 to 10 days) a change of food was also noticed. The contents were mostly insect fragments. With development, the intake of mollusc shells increased. The insects were mostly of the Orthoptera group (in nymphal stage). In one case, one egg case of a spider was also found. At the fledgling stage a few soft rice grains could be traced in some cases. Stone chips were still present but gradually their number was reduced in all the stomachs of the developed nestling. The mollusc shells were of two types, Gastropoda and Pelecypoda.

In the non-breeding adults (collected in October from rice cultivation), the stomach-contents consisted mostly of rice grains together with 2 or 3 stone chips in each stomach. In a very few cases, insects were also found. The insects were nymph of Jassids, Hemipterous nymphs and Lepidoptera larvae which were associated with the paddy ear-heads and seemed to have been accidently swallowed. The stomach-contents of the male bird during the breeding season were mostly rice grains, a little amount of insect fragments, few stone-chips and mollusc shells. In one case the number of pebbles was fifteen.

Breeding female : Same as breeding male. In some cases, mostly weed seeds were found, perhaps for feeding new born chicks.

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